

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 1-20 are pending in this application. Claims 1-2, 5-8, 11-12, and 15-18 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 6,072,912 to Orito in view of U.S. patent 5,371,613 to Arimoto et al. (herein “Arimoto”). Claims 3-4 and 13-14 were rejected under 35 U.S.C. § 103(a) as unpatentable over Orito in view of Arimoto and U.S. patent 5,659,355 to Barron et al. (herein “Barron”). Claims 9-10 and 19-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Orito in view of Arimoto and U.S. patent 5,900,948 to Shigeeda et al. (herein “Shigeeda”).

Addressing the above-noted rejections, those rejections are traversed by the present response.

Initially, applicants submit the basis for the outstanding rejection appears to be misconstruing the claimed features and the applied art.

The claims are directed to an image reading device. In that image reading device an A-D converter performs A-D conversion. That A-D converter also receives a reference voltage. As shown for example in Figure 2 in the present specification the A-D converters 14 each receive a reference voltage Vref.

According to the claimed invention, the reference voltage supplied to the A-D converter can:

vary between first, second, and third reference voltages based on a current mode of an image scanner, the first reference voltage selected for a background removal function, and one of the second and third reference voltages being selected when the background removal function is not used.

As discussed in the present specification at page 18, line 25 to page 19, line 25, three types of voltages Vref can be utilized as a reference voltage Vref for the A-D converters 14. Those

voltages are selected based on a current mode of an image scanner, and are based on whether a background removal function is used or not.

Those features recited in the claims are believed to clearly distinguish over the applied art.

The outstanding rejection cites Orito as a primary reference and states:

Orito discloses an A-D converter, (figure 5(61)) a reference voltage varying part (figure 5 (70(portion)) of Orito) varying a reference voltage of said A-D converter (column 6, lines 20-26 of Orito) to vary between first (column 5, lines 58-62 of Orito), second (column 5, lines 52-55 of Orito) and third (column 5, lines 55-58 of Orito) reference voltages based on a current mode of an image scanner (column 5, lines 52-62 of Orito), the first reference voltage selected for a background removal function (column 5, lines 58-62 and column 9, lines 39-45 of Orito), and one of the second and third reference voltages being selected when the background removal function is not used (column 5, lines 52-58 of Orito). Three separate reference levels are selected between. A first reference level is for reading image data (column 5, lines 58-62 of Orito), which includes the function of background removal (column 9, lines 39-45 of Orito). By subtracting the black average values from the image data (GD(n)-B(n)) (column 9, lines 39-45 of Orito), the background level is removed. If image data is not read, then either white level data or black level data are determined (column 5, lines 52-58 of Orito). Since all image data read by the photoelectric device are specifically converted to voltages (column 6, lines 20-26 of Orito), the first, second and third reference levels are reference voltages. Furthermore, since the white level data and black level data are determined without respect to background removal (column 7, lines 50-58 and column 8, lines 5-11 of Orito), different reference voltages are used for white level data reading, black level data reading, and image data reading.

In view of the above-noted statements the outstanding Office Action cites element 61 (the binarization circuit) in Orito as corresponding to the claimed A-D converters.

The outstanding Office Action goes on to cite several portion in Orito, predominantly at column 5, lines 52-65, to meet the above-noted limitations of providing first, second, and third reference voltages to an A-D converter. However, that basis for the outstanding rejection completely misconstrues the teachings in Orito.

First, for Orito to disclose a structure that meets the claimed limitations Orito would have to disclose that the reference voltage provided to the binarization circuit 61 could vary between first, second, and third reference voltages. Orito simply does not teach or suggest such an operation.

As noted above, in the claimed invention, and again with reference to Figure 2 in the present specification as a non-limiting example, the reference voltage Vref provided to the A-D converters 14 can vary between first, second, and third reference voltages. Orito does not disclose or suggest any structure in which three different reference voltages can be applied to the binarization circuit 61; which is needed as in the outstanding rejection the binarization circuit 61 was cited as corresponding to the claimed A-D converter.

Each of the noted portions in Orito, for example at column 5, lines 52-65, disclose different operations of the image sensor 54. However, none of those portions disclose or suggest changing a reference voltage provided to the binarization circuit 61.

The above-noted basis for the outstanding rejection also appears to cite different portions in Orito with respect to white levels or black levels. However, those levels are directed only to the image sensor 54 and do not at all correspond with changing a reference voltage provided to the binarization circuit 61.

Thereby, applicants respectfully submit that Orito does not in fact disclose the claimed feature of:

a reference voltage varying part varying a reference voltage of said A-D converter to vary between first, second, and third reference voltages based on a current mode of an image scanner, the first reference voltage selected for a background removal function, and one of the second and third reference voltages being selected when the background removal function is not used[.]

Thereby, Orito does not disclose the features relied upon in the Office Action.

Moreover, none of the further teachings in the cited references to Arimoto, Barron, or Shigeeda cure the above-noted deficiencies of Orito.

In view of these foregoing comments, applicants respectfully submit the claims as currently written distinguish over the applied art.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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